

ST 2623.01 US
USSN: 09/495,552

PATENT
Art Group: 2653

Amendments to the Drawings

The attached sheets of formal drawings replace the sheets of informal drawings of Figs. 1-14. In addition to converting the drawings from informal to formal, minor changes have been added to the formal drawings to improve understanding of the invention and to make minor corrections. In Figs. 1, 2, 3, 5, 6, 8, and 9, shading has been removed to facilitate understanding of drawing. In Fig. 4B the numbers "18, 20, 22, 24, 26, 28" have been added. In Fig. 4D, replace the number 52 with 32. In Fig 5, "60" is changed to "64". In FIG. 8, "14" and "16" are switched. In FIG 9, changed "30" to "42", "94" to "92", add "28", change "16" to "14" and change "14" to "16". No new matter has been added.

Attachment: Replacement Sheets

This diagram shows a cross-sectional view of a VCSEL device. The substrate 10 is tapered, with a top surface 12 and a bottom surface 14. A VCSEL emitter 16 is located on the top surface 12. The emitter includes a p-type layer 18, an active region 20, and an n-type layer 22. A tapered buffer layer 24 is positioned between the active region 20 and the n-type layer 22. The buffer layer 24 has a top surface 25 and a bottom surface 26. A tapered cladding layer 28 is located on the bottom surface 26. The cladding layer 28 has a top surface 29 and a bottom surface 30. A tapered contact layer 32 is on the bottom surface 30. The contact layer 32 has a top surface 33 and a bottom surface 34. A tapered passivation layer 36 is on the top surface 33. The passivation layer 36 has a top surface 37 and a bottom surface 38. A tapered window 40 is formed in the passivation layer 36, exposing the contact layer 32. A tapered electrode 42 is on the top surface 37. The electrode 42 has a top surface 43 and a bottom surface 44. A tapered contact pad 46 is on the bottom surface 44. The contact pad 46 has a top surface 47 and a bottom surface 48. A tapered contact wire 50 is on the bottom surface 48. The contact wire 50 has a top surface 51 and a bottom surface 52. A tapered contact pad 54 is on the bottom surface 52. The contact pad 54 has a top surface 55 and a bottom surface 56. A tapered contact wire 58 is on the bottom surface 56. The contact wire 58 has a top surface 59 and a bottom surface 60. A tapered contact pad 62 is on the bottom surface 60. The contact pad 62 has a top surface 63 and a bottom surface 64. A tapered contact wire 66 is on the bottom surface 64. The contact wire 66 has a top surface 67 and a bottom surface 68. A tapered contact pad 70 is on the bottom surface 68. The contact pad 70 has a top surface 71 and a bottom surface 72. A tapered contact wire 74 is on the bottom surface 72. The contact wire 74 has a top surface 75 and a bottom surface 76. A tapered contact pad 78 is on the bottom surface 76. The contact pad 78 has a top surface 79 and a bottom surface 80. A tapered contact wire 82 is on the bottom surface 80. The contact wire 82 has a top surface 83 and a bottom surface 84. A tapered contact pad 86 is on the bottom surface 84. The contact pad 86 has a top surface 87 and a bottom surface 88. A tapered contact wire 90 is on the bottom surface 88. The contact wire 90 has a top surface 91 and a bottom surface 92. A tapered contact pad 94 is on the bottom surface 92. The contact pad 94 has a top surface 95 and a bottom surface 96. A tapered contact wire 98 is on the bottom surface 96. The contact wire 98 has a top surface 99 and a bottom surface 100.

FIG. 1

Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
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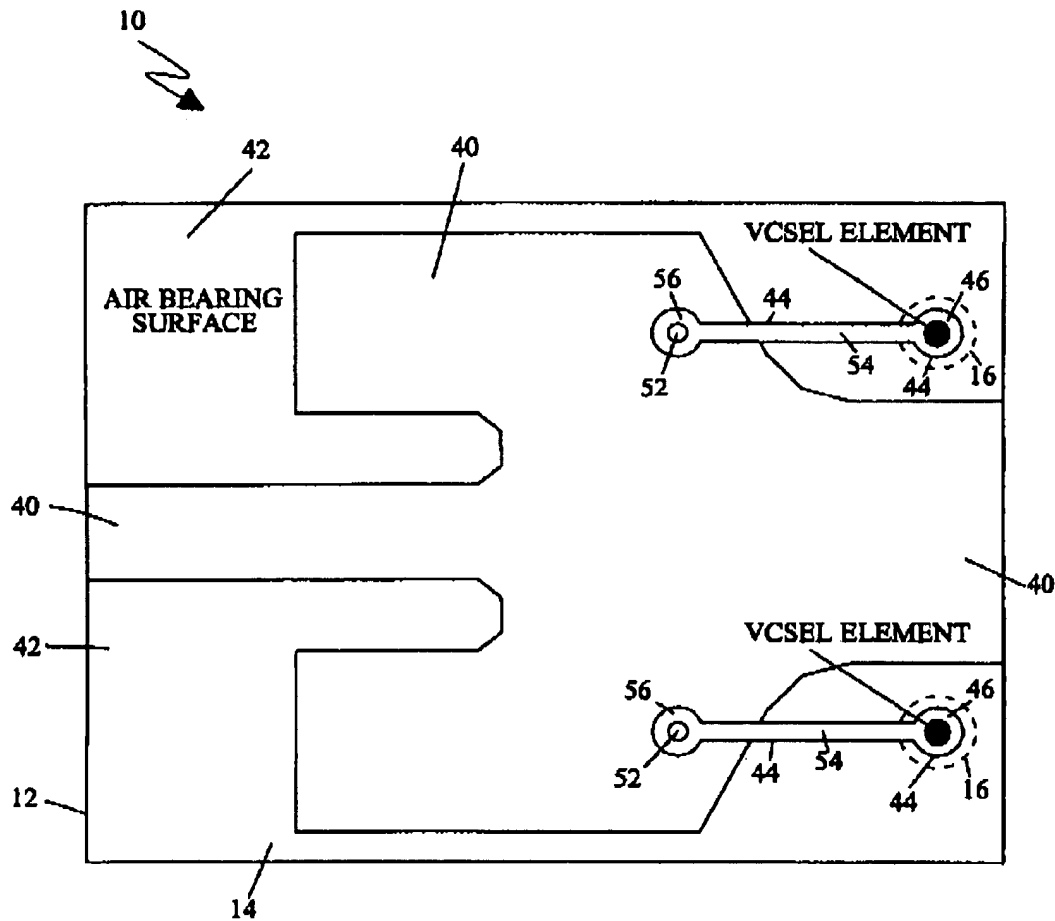


FIG. 2

Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

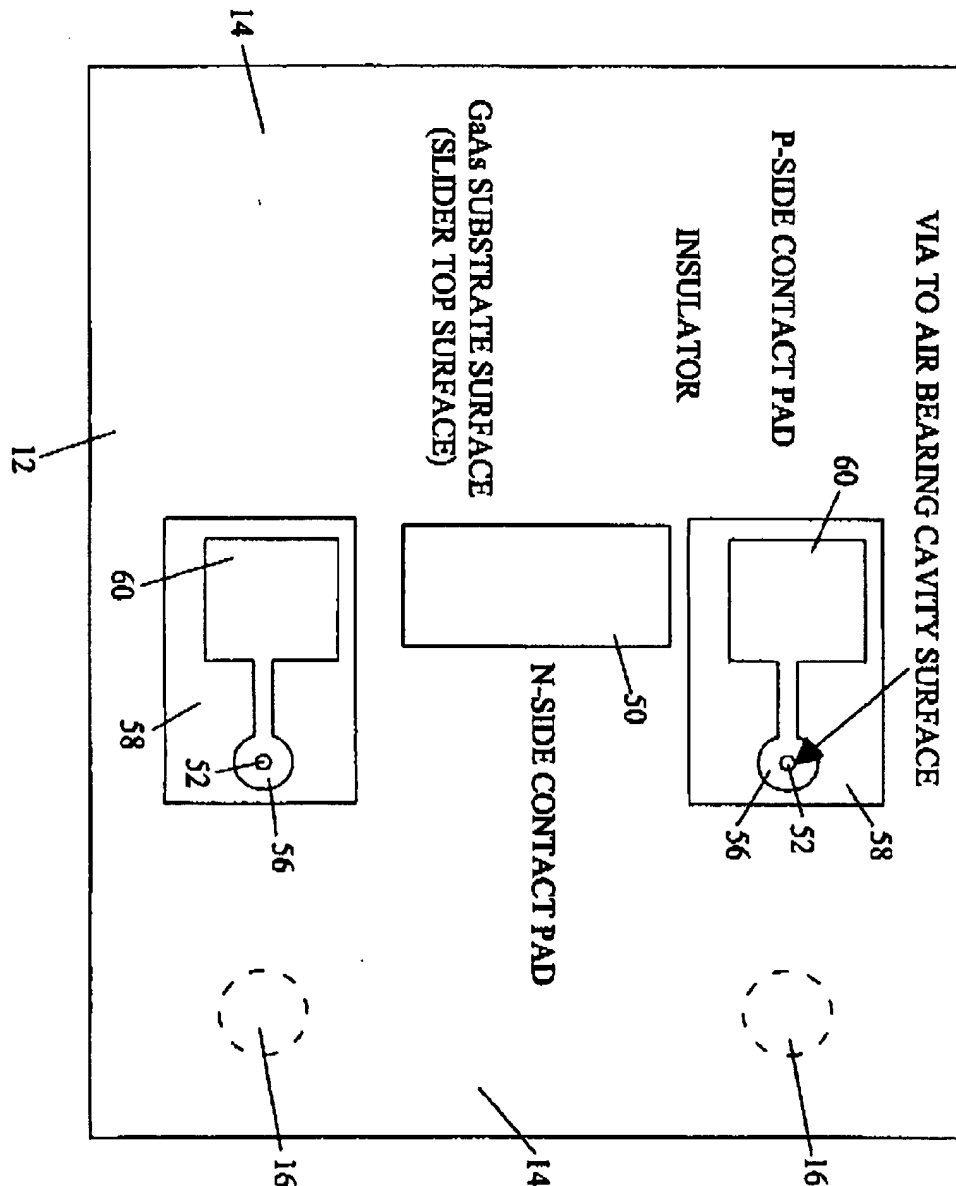


FIG. 3

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Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

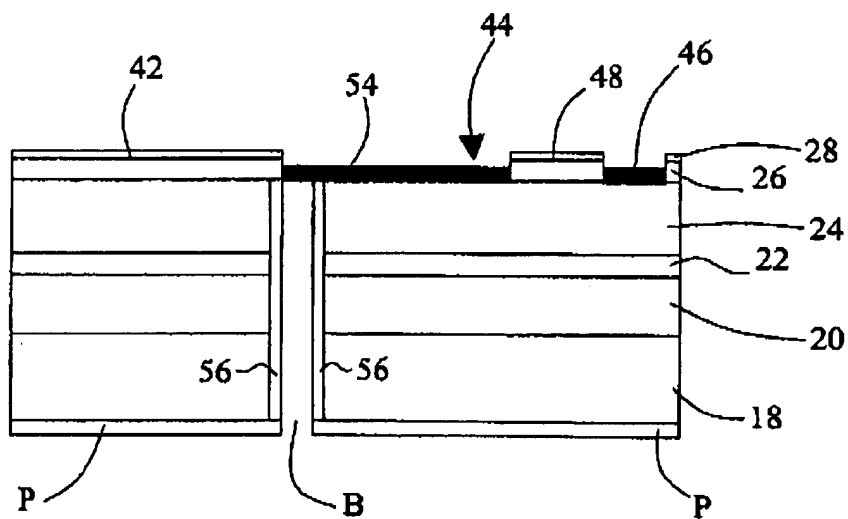


FIG. 4C

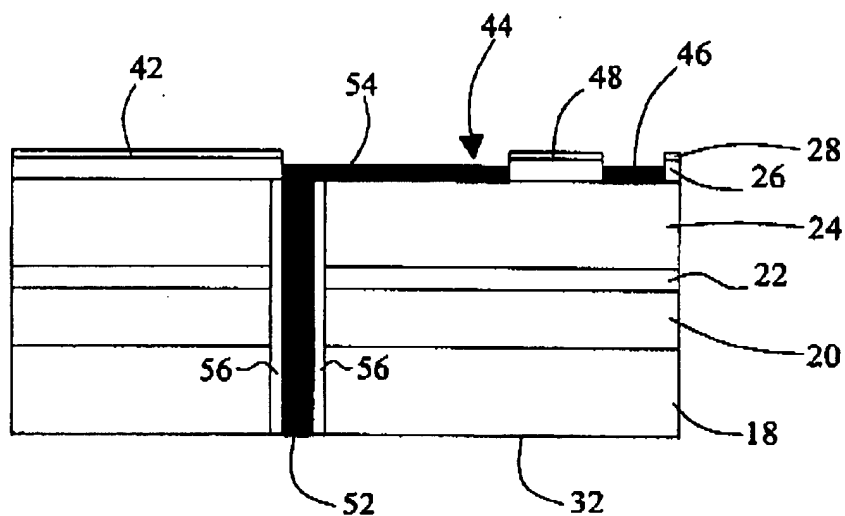


FIG. 4D

Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

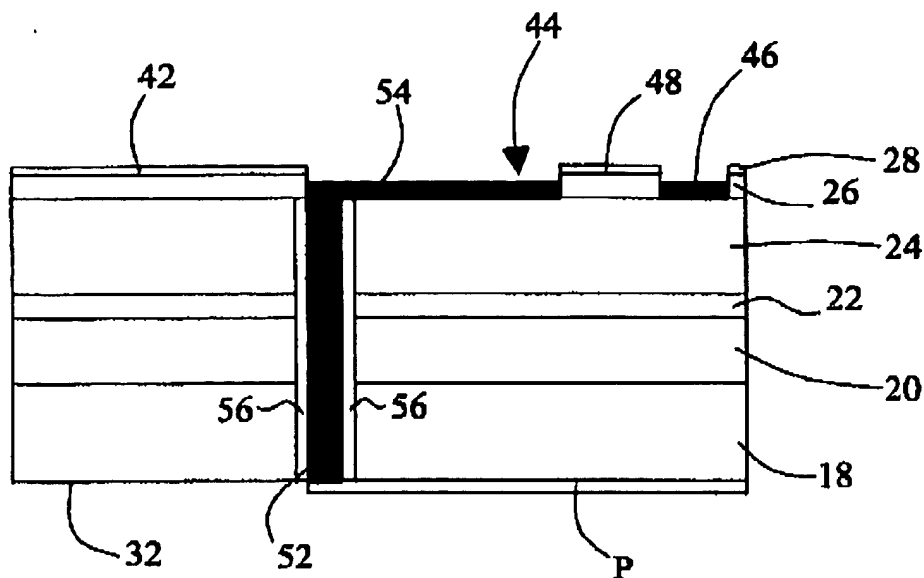


FIG. 4E

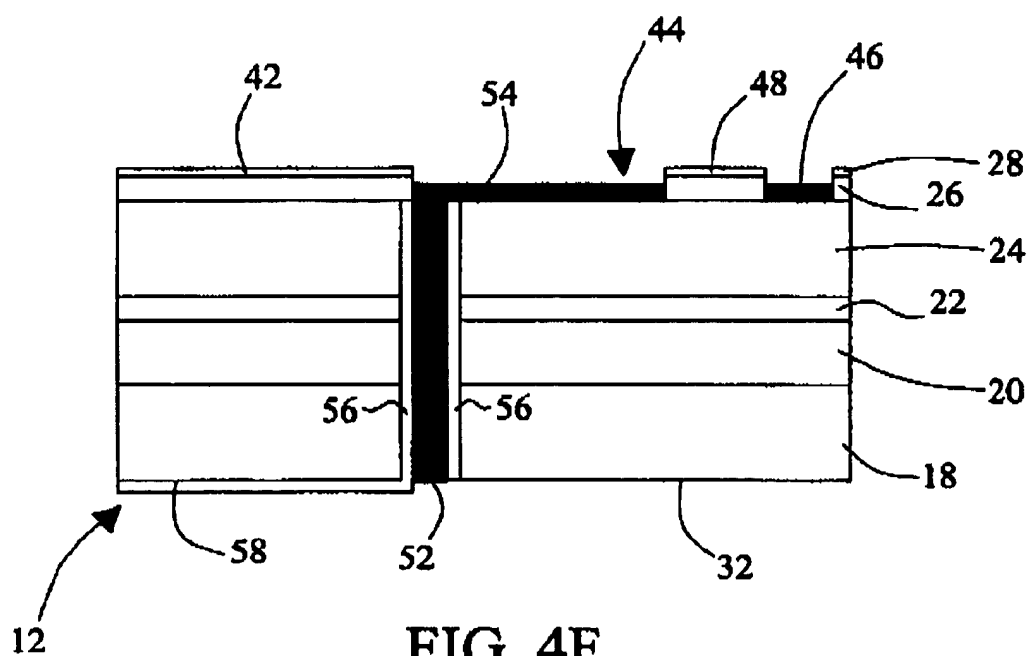
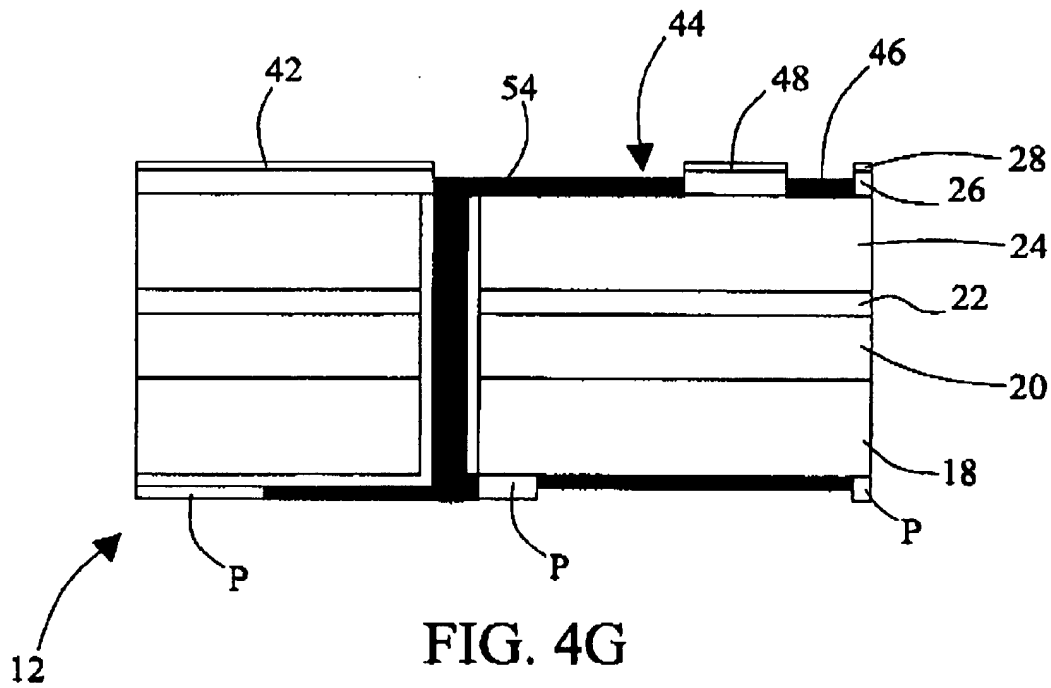
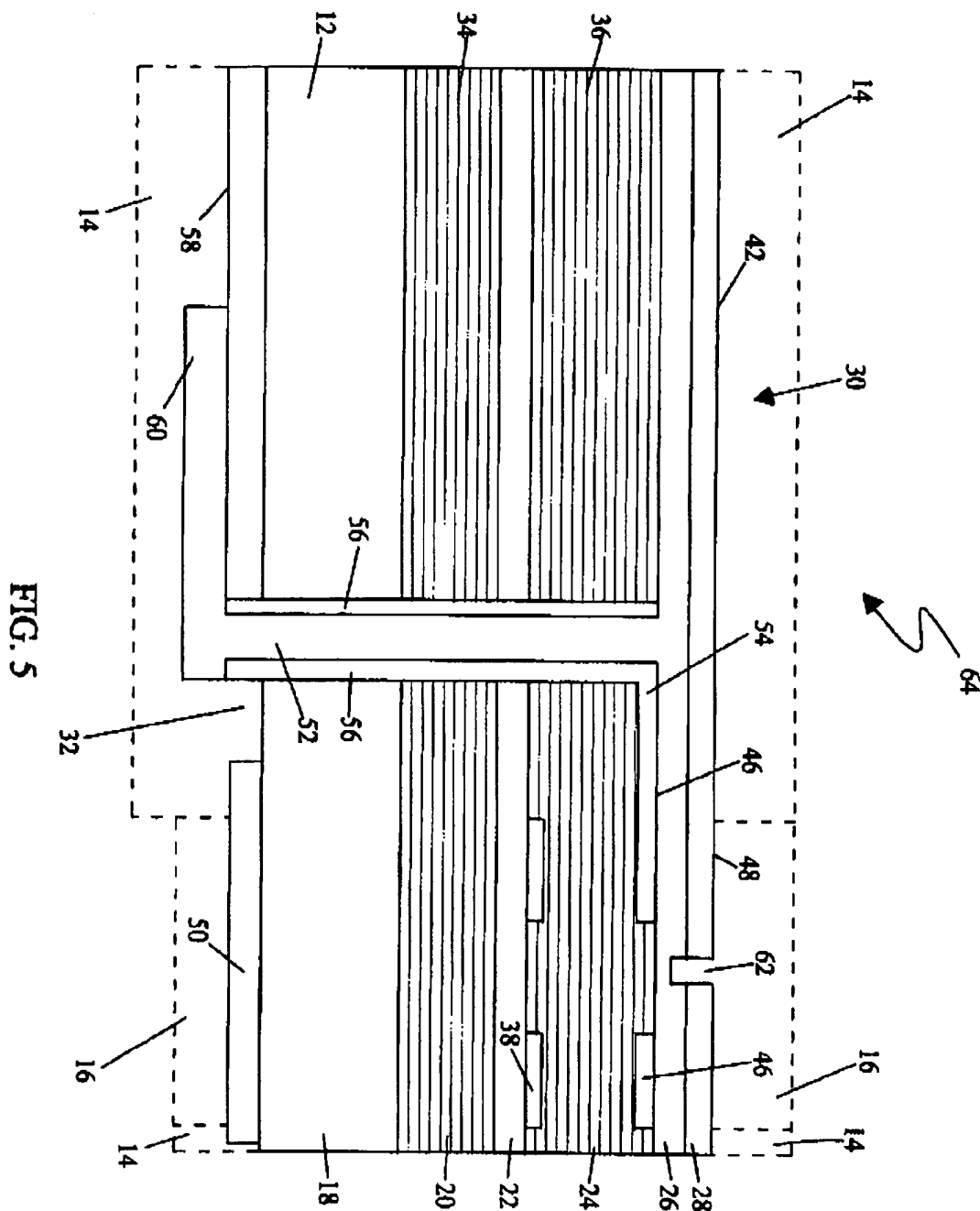


FIG. 4F

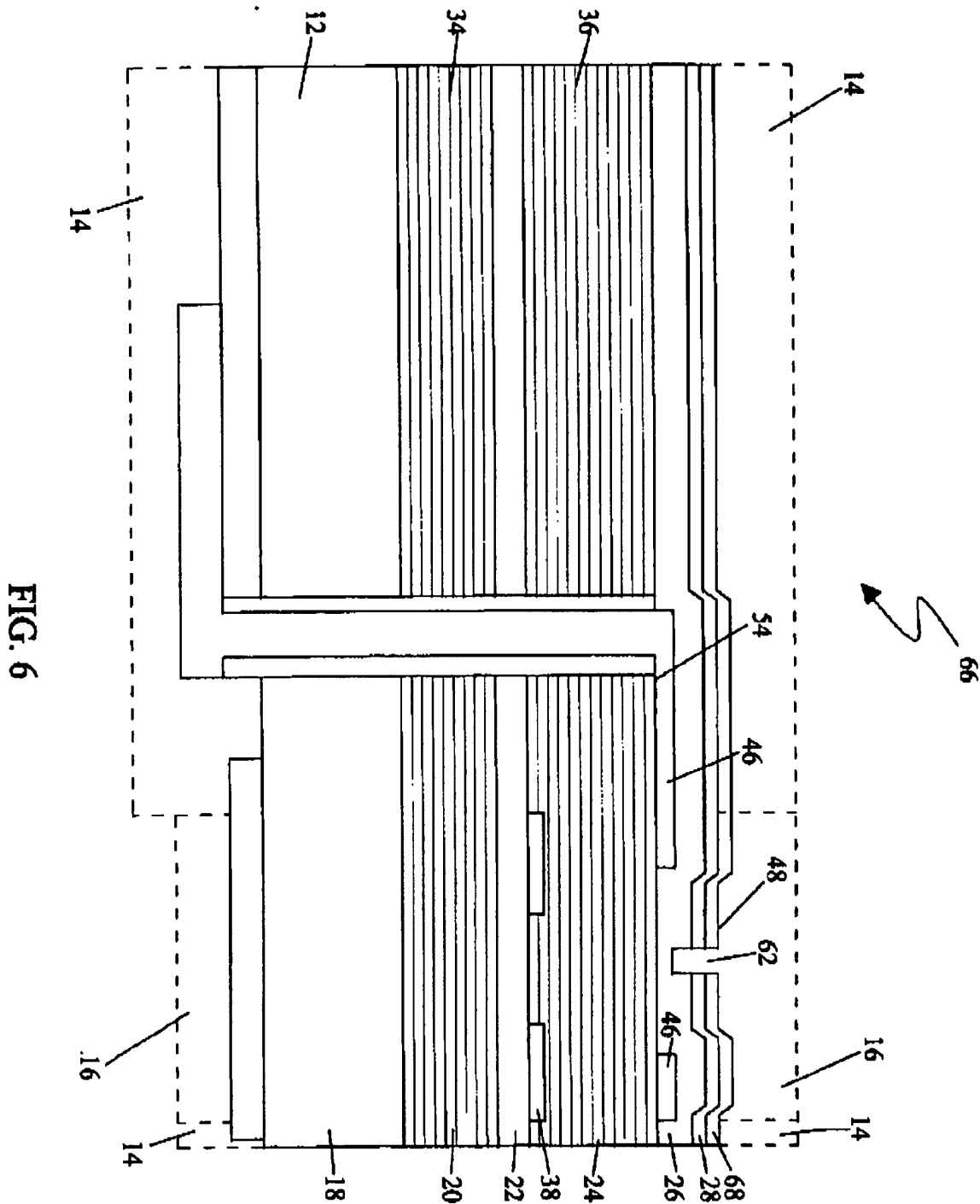
Application No.: 09/485,552
 Amdt. Dated: August 6, 2003
 Reply to Office Action of: May 6, 2003
 Replacement Sheet



Application No.: 09/495,552
 Amdt. Dated: August 6, 2003
 Reply to Office Action of: May 6, 2003
 Replacement Sheet



Application No.: 09/495,552
 Amdt. Dated: August 6, 2003
 Reply to Office Action of: May 6, 2003
 Replacement Sheet



Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

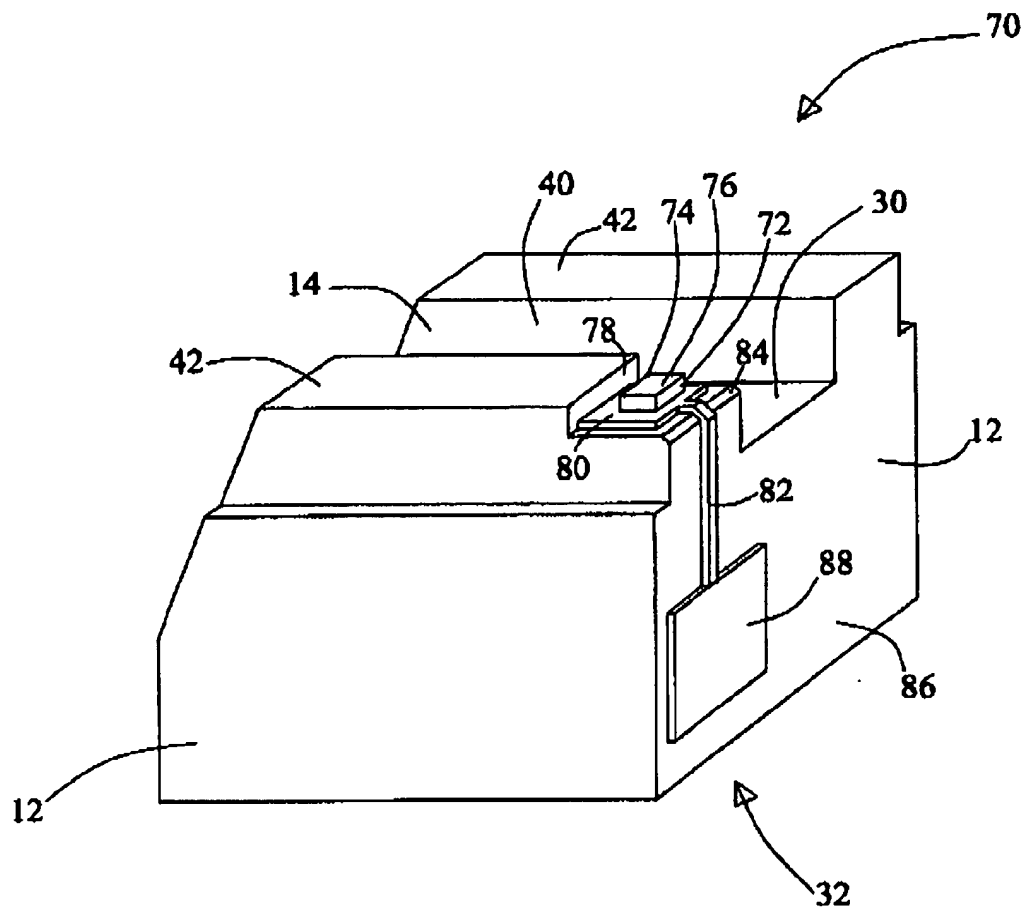
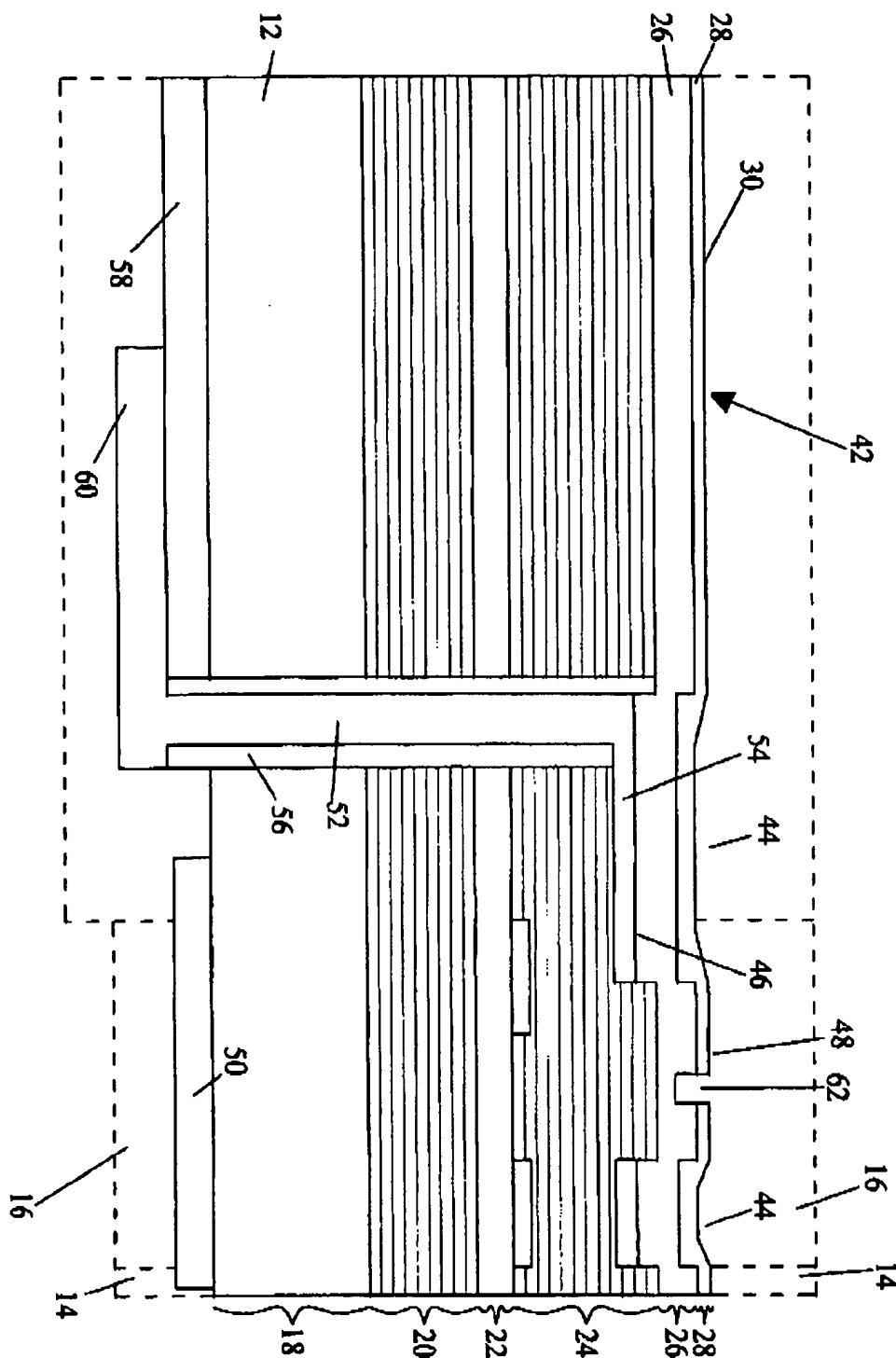


FIG. 7

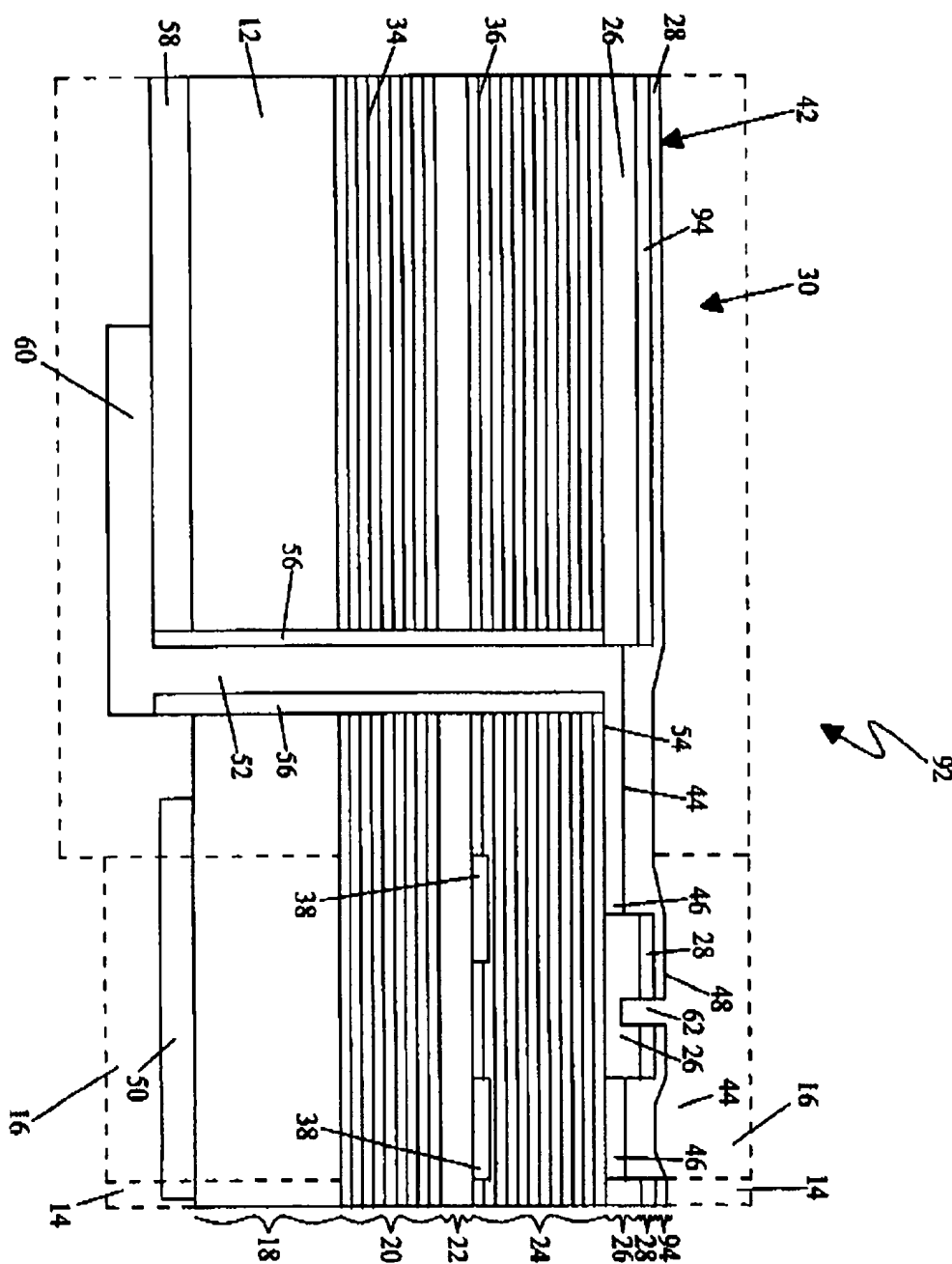
Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

FIG. 8



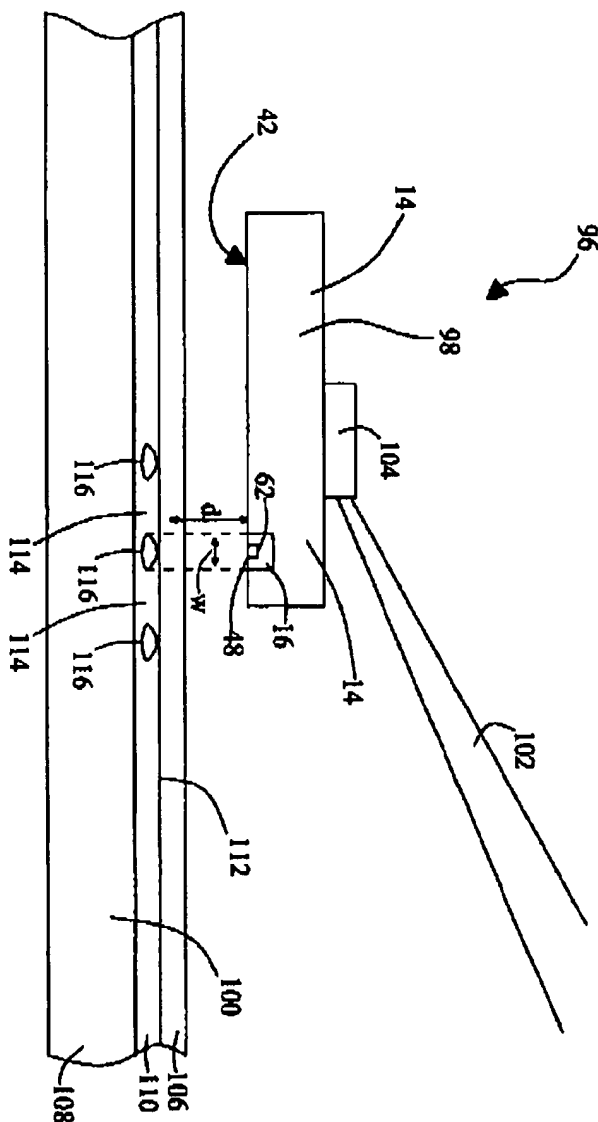
Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

FIG. 9



Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

FIG. 10



Application No.: 09/495,552
Amtd. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

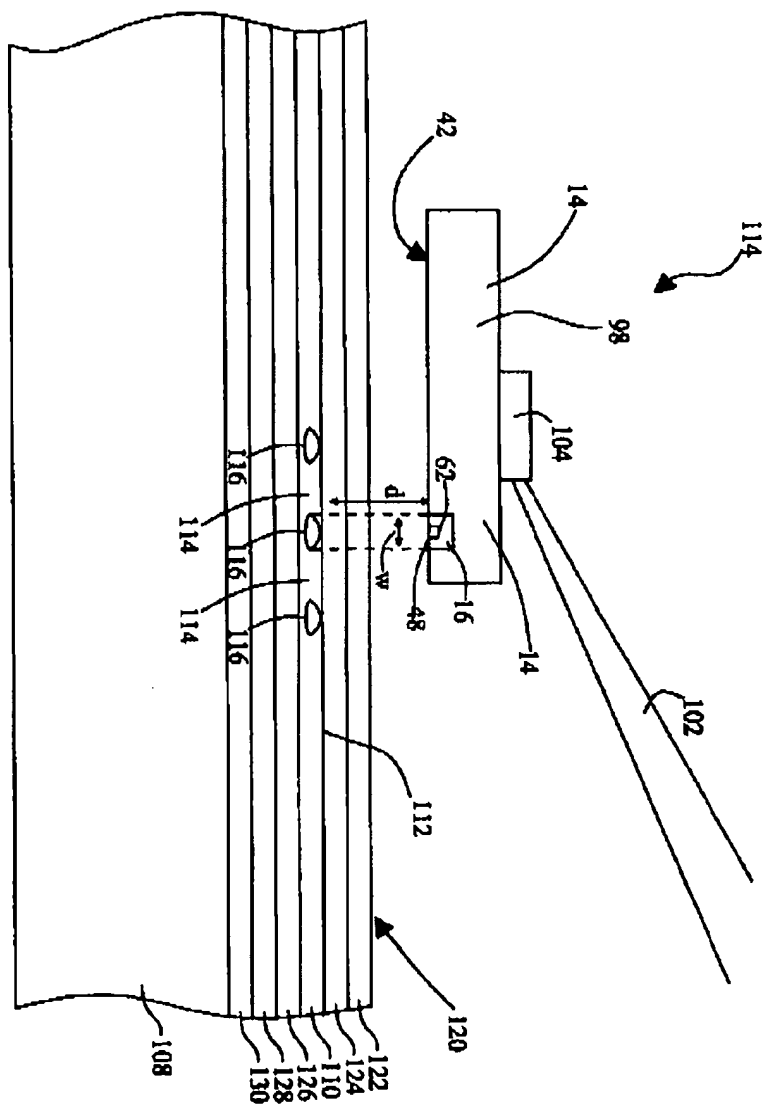


FIG. 11

FIG. 12A

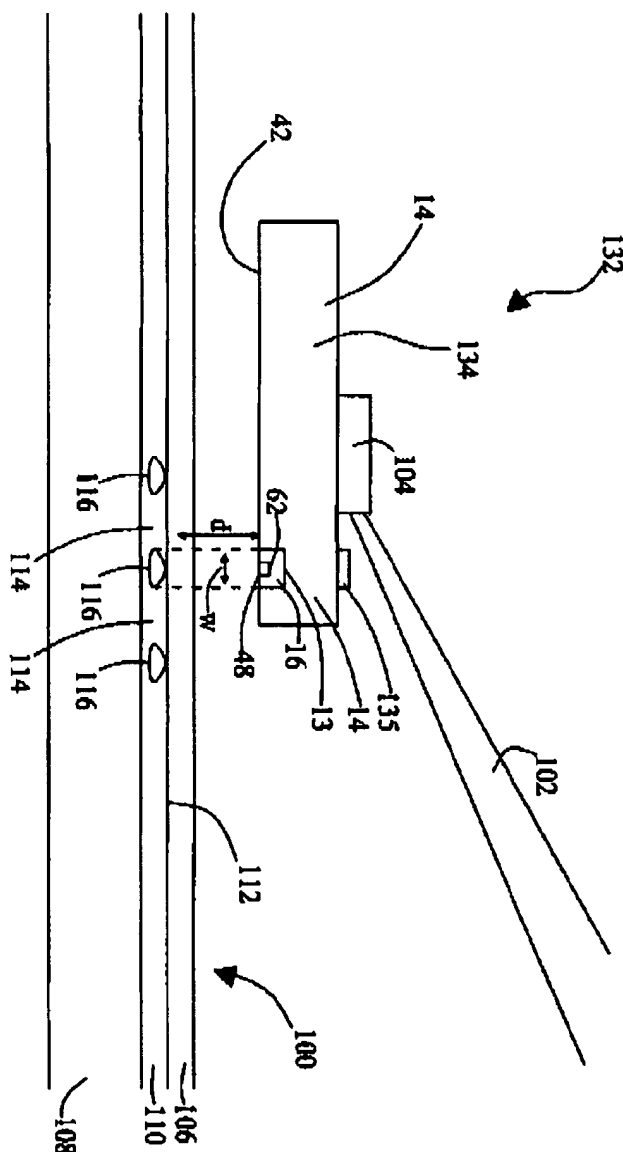
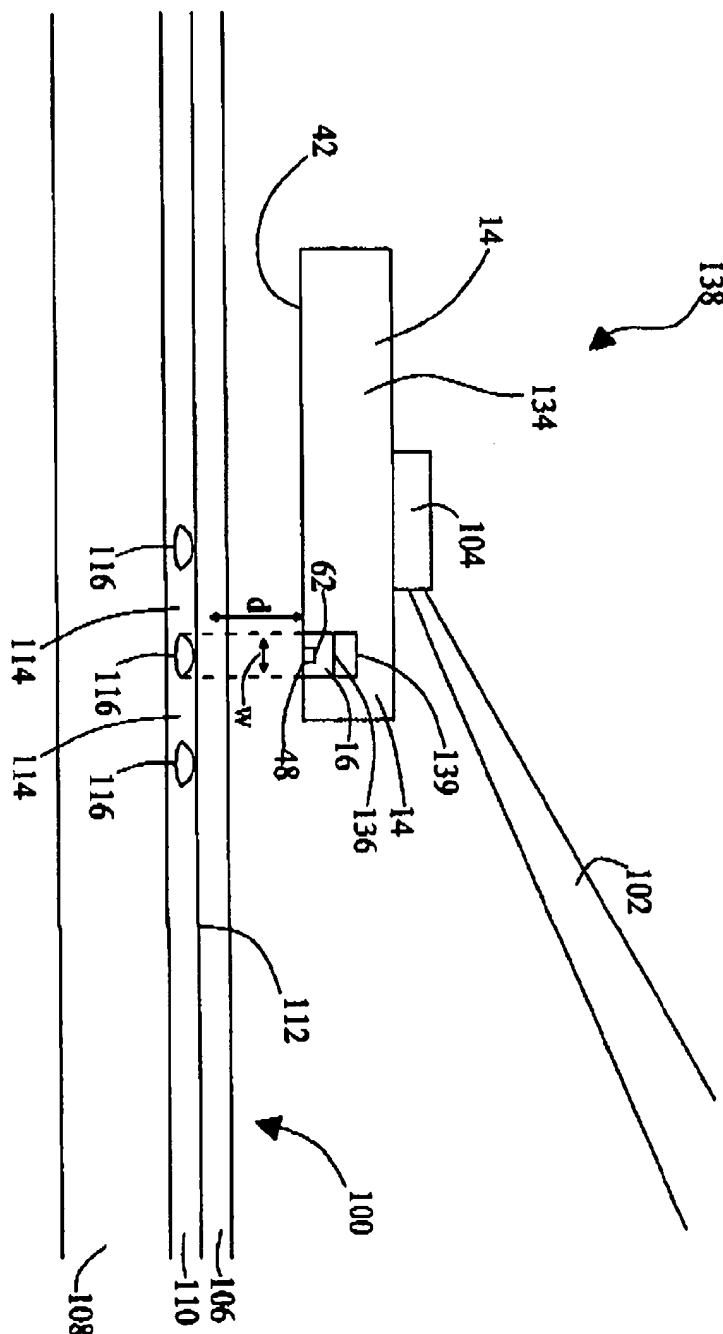
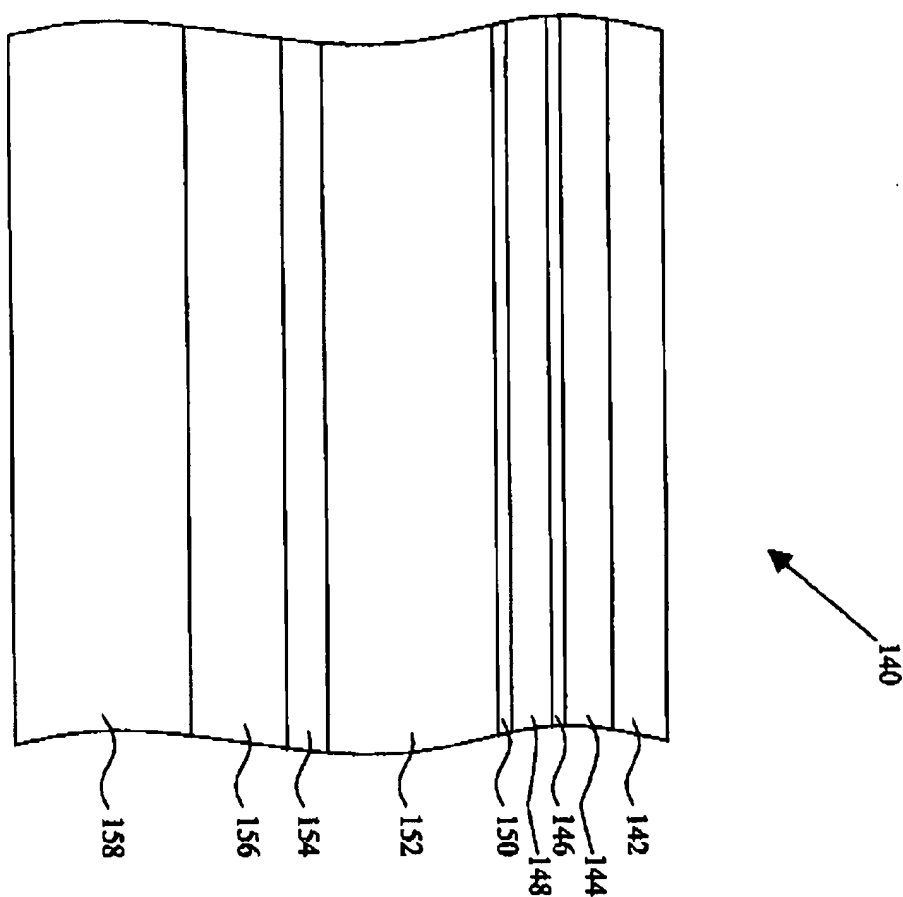


FIG. 12B



Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

FIG. 13



Application No.: 09/495,552
Amdt. Dated: August 6, 2003
Reply to Office Action of: May 6, 2003
Replacement Sheet

